

§ 86.1527-84 Idle test procedure; overview.

(a) The idle emission test procedure is designed to determine the raw concentration (in percent) of CO in the exhaust flow at idle. The test procedure begins with the engine at normal operating temperature. (For example, the warm-up for an engine may be the transient engine or chassis dynamometer test.)

(b) Raw emission sampling must be made before dilution occurs from a single exhaust pipe in which exhaust products are homogeneously mixed. The configuration for dual-exhaust systems must also allow for raw emission measurements, which will require that an additional "Y" pipe be placed in the exhaust system before dilution.

§ 86.1530-84 Test sequence; general requirements.

(a) The following test sequence lists the major steps encountered during the idle test:

Preparation
Warm-up (or Emission Test)
Preconditioning, 30 seconds minimum, six minutes maximum
Idle Stabilization, 30±5 seconds
Idle Emission Sampling, one minute minimum, six minutes maximum

These steps are described by subsequent procedures.

(b) Ambient test cell conditions during the test shall be those specified in § 86.1330-84 or § 86.130-78.

§ 86.1537-84 Idle test run.

The following steps shall be taken for each test:

(a) Check the device(s) for removing water from the exhaust sample and the sample filter(s). Remove any water from the water trap(s). Clean and replace the filter(s) as necessary.

(b) Set the zero and span points of the CO analyzer with the electrical spanning network or with analytical gases.

(c) Achieve normal engine operating condition. The transient engine or chassis dynamometer test is an acceptable technique for warm-up to normal operating condition for the idle test. If the emission test is not performed prior to the idle emission test, a heavy-

duty engine may be warmed-up according to § 86.1332-84(d)(2) (i) through (iv). A light-duty truck may be warmed up by operation through one Urban Dynamometer Driving Schedule test procedure (see § 86.115-78 and appendix I to this part).

(d) Operate the warm engine at 2500 ±50 rpm, or rated torque speed for diesel-cycle engines, and zero load for a minimum of 30 seconds and a maximum of 6 minutes.

(e) If the CVS sampling system is used, the following procedures apply:

(1) If bag samples are drawn, with the sample selector valves in the standby position connect evacuated sample collection bags to the dilute exhaust and dilution air sample collection systems.

(2) Start the CVS (if not already on), the sample pumps, integrators, and the raw CO₂ analyzer, as applicable. (The heat exchanger of the constant volume sampler, if used, shall be running at operating temperature before sampling begins.)

(3) Adjust the sample flow rates to the desired flow rate and set the gas flow measuring devices to zero.

(4) Operate the engine or vehicle at curb idle for 30±5 seconds with the clutch disengaged or in neutral gear. A heavy-duty engine may also be disconnected from the dynamometer, or the dynamometer may be shut off.

(5) Begin raw and dilute sampling.

(6) For bag sampling, sample idle emissions long enough to obtain a sufficient bag sample, but in no case shorter than 60 seconds nor longer than 6 minutes. Follow the sampling and exhaust measurements requirements of § 86.340-79(e) for the conducting of the raw CO₂ measurement.

(7) As soon as possible, transfer the idle test exhaust and dilution air samples to the analytical system and process the samples according to § 86.1540-84. Obtain a stabilized reading of the exhaust sample on all analyzers within 20 minutes of the end of the sample collection phase of the test.

(f) If the raw exhaust sampling and analysis technique specified in § 86.309-79 is used, the following procedures apply:

(1) Warm up the engine or vehicle per paragraphs (c) and (d) of this section. Operate the engine or vehicle at the